months in the empiric treatment of neutropenic fever: imipenem monotherapy, cefepime plus tobramycin (extended-interval dosing), and piperacillin/tazobactam plus tobramycin (extended-interval dosing). Levofloxacin was initiated as prophylaxis in March 2002 if the duration of neutropenia was expected to be > 10 days. For the time periods before (January 1999 to December 2001) and after (January 2002 to June 2004) the initiation of antibiotic cycling and levofloxacin prophylaxis, we retrospectively compared the rates of bacteremia (excluding coagulase-negative staphylococcus) and antimicrobial use. **Results:** The rate of gram-positive bacteremia was similar in the 2 periods (4.6 vs 4.8 episodes/1000 patient days; $P = .87$). However, there was an emergence of methicillin-resistant *Staphylococcus aureus*, vancomycin-resistant *Enterococcus faecium*, and levofloxacin-resistant *Streptococcus species* during the period of antibiotic rotation and prophylaxis. Gram-negative bacteremia rates decreased significantly (4.8 vs 1.8 episodes/1000 patient days; $P = .003$), and *Klebsiella* species disappeared from culture isolates. After the initiation of antibiotic cycling, the rates of *Pseudomonas* isolates decreased (1.7 vs 0.7 episodes/1000 patient days; $P = .09$), and isolated strains were less resistant to ceftazidime and piperacillin. Vancomycin use decreased during the period of antibiotic cycling and prophylaxis (397 vs 289 defined daily dose/1000 patient days; $P < .001$). **Conclusions:** The introduction of antibiotic cycling and prophylaxis in our BMT unit was associated with a significant decrease in gram-negative bacteremia rates. Although there was no evidence of emerging resistance among the gram-negative isolates, there was an increased rate of MRSA and VRE bacteremia.

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SINGLE CENTER EXPERIENCE WITH COLLECTION AND ADMINISTRATION OF G-CSF–MOBILIZED, IRRADIATED GRANULOCYTE TRANSFUSIONS FROM DIRECTED DONORS TO SUPPORT PATIENTS AT HIGH RISK FOR INFECTIONS UNDERGOING UNRELATED DONOR BLOOD AND MARROW TRANSPLANTATION

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Over the past 7.5 years, we supported patients at increased risk for infection for 4–10 weeks posttransplantation with G-CSF primed, irradiated granulocyte transfusions (grans) harvested from a healthy family member. After clearance and placement of a central venous catheter, donors were injected with G-CSF (10 μg/kg) 12–15 hours before donation, twice weekly, 3 days apart. Grans were collected on a Baxter CS3000+ blood separator, irradiated, and divided into 3 equal aliquots to be administered on the day of collection and the next 2 days. RBC and plasma were depleted as needed to prevent reactions due to ABO incompatibility between the patient, their transplantation donor, and the granulocyte donor. Grans were stored at 4°C on a blood rotator until warming to room temperature before infusion. Each collection was tested for cell count, viability, bacterial and fungal cultures. After premedication with antihistamines and steroids, the grans were infused into the patient over 2 hours daily for 6–7 days per week. Patients did not receive more than 5×10^8 cells/kg during a single infusion. Donors were supported with iron, vitamin K, and calcium. A total of 82 patients (32 with fungal infections, 26 undergoing second transplant, 22 with other infections, and 2 with surgical wounds) received > 2800 granulocyte transfusions from 91 donors harvested in 939 separate donation procedures. The average number of donations per donor was 10 over 5 weeks. The average WBC in donors before collection was $42.17 \times 10^6/\mu L$ (range, 3.49–87.9). The median number of grans collected at each procedure was 5.71×10^{10} total cells (range, 0.025–21.7), with a viability of > 98%. Some 6% of the collections were discarded before infusion due to bacterial contamination (3%) or clotting (3%). Donor complications included line infection in 14% of donors requiring CVL removal in 5%, pruritis in 2.5%, and hypoproteinemia in 1%. The mean drop in donor hemoglobin between the first and last procedure was 2 g. There were no serious complications in gran recipients. Less than 10% of patients with active infections experienced progression or recurrence of infection on granulocyte support. We conclude that patients with invasive fungal disease, prolonged neutropenia, and surgical wounds can be maintained infection-free during marrow aplasia after allogeneic stem cell transplantation with regular transfusions of irradiated granulocytes. Risks to donors are minimal despite repeated donations over 1–2 months.

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SAFETY OF BISPHOSPHONATE USE IN HEMATOPOIETIC PROGENITOR CELL TRANSPLANTATION IN MULTIPLE MYELOMA PATIENTS

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Background: The clinical course of multiple myeloma is often associated with significant bone disease. Bisphosphonates have been shown to reduce the number of skeletal events. Treatment is continued even after hematopoietic progenitor cell transplant. Studies have shown renal toxicity associated with different bisphosphonates. **Methods:** We retrospectively reviewed the records of all multiple myeloma patients who underwent hematopoietic progenitor cell transplantation and received bisphosphonates during the period January 2001 to June 2004 at our institution. A total of 22 patients were analyzed. The types of bisphosphonates used were zolendronate and pamidronate. Patients were categorized as to the type of bisphosphonate used and age. Renal dysfunction was defined as an increase in serum creatinine of > 0.5 mg/dL over baseline. **Results:** Five of the 22 patients (22.7%) developed renal dysfunction. The table shows the distribution of patients, type of bisphosphonate, and the distribution of patients with renal toxicity. Among the 5 patients who developed renal impairment, 4 patients (80%) completely recovered their renal function and continued to use bisphosphonates. **Conclusions:** The analysis shows that bisphosphonates can be safeley used in multiple myeloma patients who have undergone hematopoietic progenitor cell transplant. If renal dysfunction develops during treatment, then the bisphosphonate can be discontinued temporarily. Renal function is likely to recover, and the bisphosphonate can be safely reimplemented.

Table 1. *All Patients Who Received Bisphosphonates by Type and Age (1/2001–6/2004)*

Age Group	Zometa	Aredia	Zometa and Aredia	Total
30–39	0	0	0	0
40–49	4	0	2	6
50–59	4	1	1	6
60–69	5	3	1	9
70–79	0	0	1	1
80+	0	0	0	0
Total	0	0	0	22
Renal Impairment by Age and Type of Bisphosphonate in Transplanted Multiple Myeloma Patients				
30–39	0	0	0	0
40–49	1	0	1	2
50–59	0	0	0	0
60–69	0	2	0	2
70–79	0	0	1	1
80+	0	0	0	0
Total	1	2	2	5

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VALGANCICLOVIR FOR THE PROPHYLAXIS OF EARLY CYTOMEGALOVIRUS (CMV) INFECTION AFTER ALLOGENEIC STEM CELL TRANSPLANTATION

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The use of highly immunosuppressive therapies prior to and after transplantation and the use of matched unrelated (MUD) and